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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/016,133 | 12/17/2001 | Darren Kraemer | 13850 | 4157 |

293 7590 08/27/2004

DOWELL & DOWELL PC
SUITE 309
1215 JEFFERSON DAVIS HIGHWAY
ARLINGTON, VA 22202

| EXAMINER | |
|---|---|
| ORTIZ CRIADO, JORGE L | |
| **ART UNIT** | **PAPER NUMBER** |
| 2655 | 6 |

DATE MAILED: 08/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/016,133 | KRAEMER ET AL. | |
| | Examiner | Art Unit | |
| | Jorge L Ortiz-Criado | 2655 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *07 December 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *6-13,16 and 18-41* is/are allowed.

6)☒ Claim(s) *1,14,15,17 and 42* is/are rejected.

7)☒ Claim(s) *2-5* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 December 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4,5*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Drawings*

1. Figures 1a,1b,1c and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Double Patenting*

2. Applicant is advised that should claims 1 and 42 be found allowable, claims 1 and 42 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1,14,15,17 and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Maeda U.S. Patent No. 5,084,858.

Regarding claim 1 and 42, Maeda discloses a method of reading binary information stored in a storage medium (See col. 2, lines 5-66), comprising

a) providing a storage medium having n memory-centers each with a known position and the memory-centers having substantially the same physical dimensions(See Fig. 2,3);

b) accessing said storage medium with an addressing system and measuring for each memory-center a scalar signal intensity $I_m$ emitted from a pre-selected region which is centered on the known position of said memory-center (See col. 3, lines 41 to col. 4, line 22; Fig. 3) ; and

c) extracting the stored binary information by calculating bit values $b_m$ for all memory-centers using an equation $\mathbf{B}=\mathbf{C}^{-1}\,\mathbf{I}/\mathbf{Io}$, wherein **Io** is a predetermined normalizing factor/(any predetermined number, i.e. 1,2,3,4...etc.), $\mathbf{I}=(I_1, I_2, \ldots, I_n)$ is an array of said scalar intensities for all memory-centers, and $\mathbf{B}=(b_n, b_n, b_n \ldots, b_n)$ is an array of bit values, and **C** is a predetermined cross-talk matrix of $n^2$ elements where each element represents a cross-talk between said pre-selected regions. (See col. 4, lines 23 to col. 5, line 26; Fig. 3)

Regarding clam 14, Maeda discloses wherein said storage medium is a 1-, 2- or 3-dimensional storage medium (See Fig. 2 and 3).

Regarding claim 15, Maeda discloses wherein said storage medium is addressed in 1-, 2- or 3-dimensions (See col. 3, lines 41 to col. 4, line 22; Fig. 2,3)

Regarding claim 17, Maeda discloses wherein the storage medium includes a homogeneous optical storage material (See col. 6, lines 62-67)

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. U.S. Patent No. 6,162,532 to Black et al., which discloses a storage medium inclding a periodic array of nano-particles, and wherein each memory-center comprises a magneto-sensitive constituent associated with each nano-particle.

b. U.S. Patent No. 6,337,117 to Maenosono et al., which discloses a nano-particles storage medium.

***Allowable Subject Matter***

6. Claims 2-5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 2, 3 and 4, the prior art of record as the prior art fails to teach or suggest either alone or in combination the value of each matrix element is defined as a function of a spacing between memory-centers i and j given by $C_{ij} = f(r') = f(|\underline{r}_i - \underline{r}_j|) = f(R_{ij})$

where f(r') is defined as a cross-talk function, and wherein said cross-talk matrix **C** is calculated by applying said cross-talk function to each element of a matrix **R** that contains all inter-memory-center spacings $R_{ij} = r' = |\underline{r}_i - \underline{r}_j|$

Regarding claim 5, the prior art of record as the prior art fails to teach or suggest either alone or in combination wherein a binary value for each memory- center is calculated from a corresponding bit value by a process wherein the n1 highest bit values are assigned a binary value of '1' and all others are assigned a binary value '0' based upon an equation relating the population of '1' valued memory-centers,

$$n_1 = \sum_{j=1}^{N} \frac{Ij}{I_0} = \frac{I_N^{total}}{I_0}$$

8. Claims 6-13, 16, 18-41 are allowed.

9. The following is an examiner's statement of reasons for allowance:

Regarding claim 6, Applicant's claimed invention is deemed allowable over the prior art of record as the prior art fails to teach or suggest either alone or in combination accessing the storage medium with an addressing system and measuring for each memory-center a scalar

signal intensity $I_m$ emitted from a pre-selected region which is centered on the known position of said memory-center, specifically **having an intensity distribution defined by an impulse response of the addressing system and an effective distribution of the signal stored within the addressed memory-center.**

Regarding clam 25, Applicant's claimed invention is deemed allowable over the prior art of record as the prior art fails to teach or suggest either alone or in combination accessing said optical storage medium with an optical addressing system and measuring for each memory-center a total optical intensity $I_m$ emitted from a pre-selected region which is centered on the known position of said memory-center, specifically **having an optical intensity distribution within a single pre-selected region $I_0(q)$ defined by a point spread function of the optical addressing system and an intensity distribution of the memory-center itself defined by an optical response of a single memory-center as imaged through an idealized optical addressing system having an infinitely small point spread function.**

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jorge L Ortiz-Criado whose telephone number is (703) 305-8323. The examiner can normally be reached on Mon.-Thu.(8:30 am - 6:00 pm),Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris H To can be reached on (703) 305-4827. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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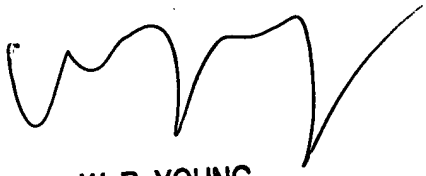

W. R. YOUNG
PRIMARY EXAMINER